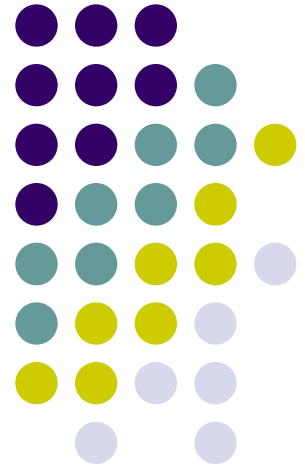


Diabetic Kidney Disease: The Current Status

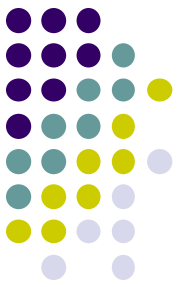
Hussein Sheashaa, MD

Professor of Nephrology, Urology and Nephrology Center and Director
of Medical E-Learning Unit, Mansoura University and Executive Director
of ESNT- Virtual Academy: <http://lms.mans.edu.eg/esnt/>

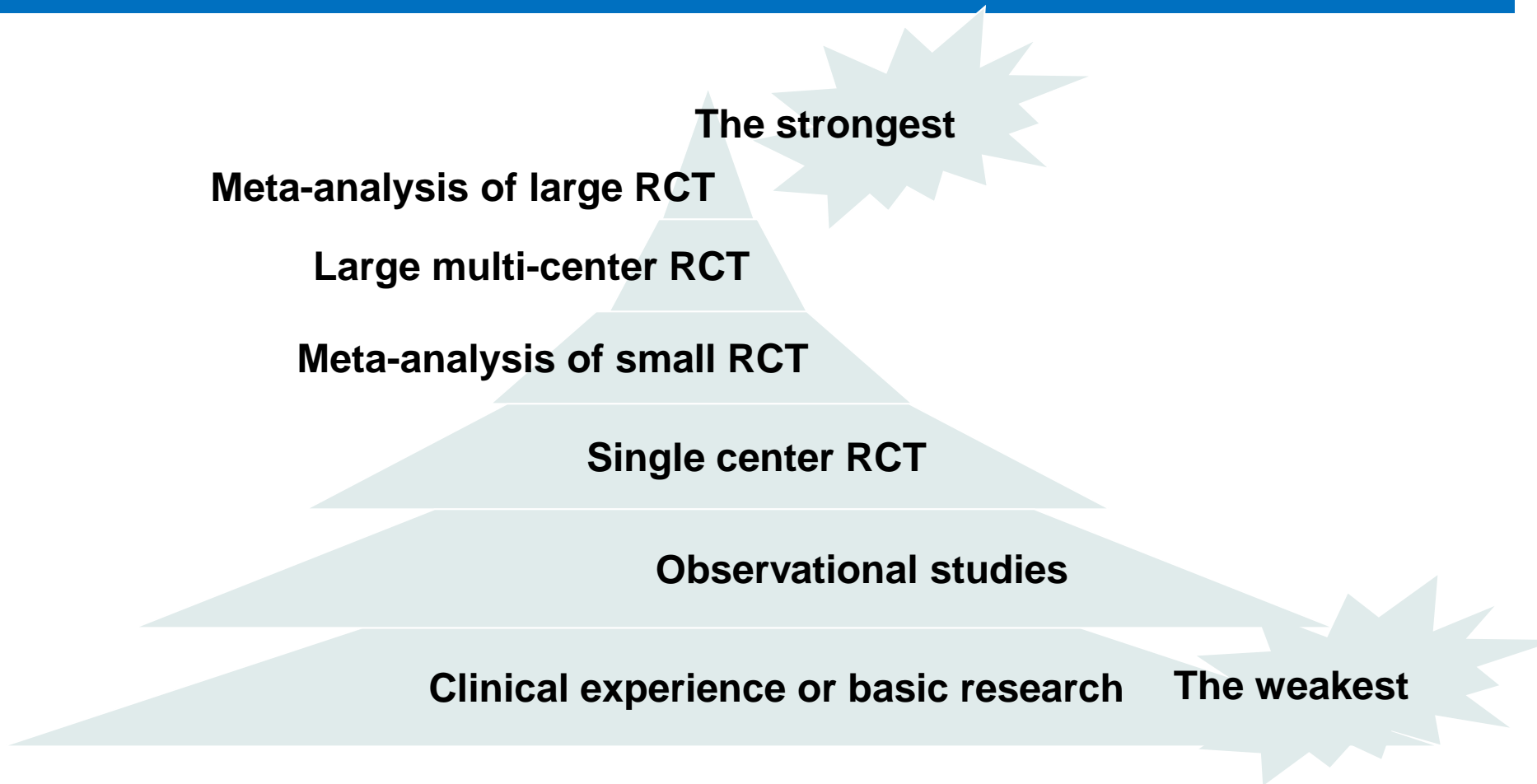
MNDU, Feb 4th , 2015







Evidence Hierarchy



Nobel Award in Medicine 2014



The Nobel Prize in Physiology or Medicine 2014

John O'Keefe, May-Britt Moser, Edvard I. Moser

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The Nobel Prize in Physiology or Medicine 2014



Photo: A. Mahmoud

John O'Keefe

Prize share: 1/2



Photo: A. Mahmoud

May-Britt Moser

Prize share: 1/4

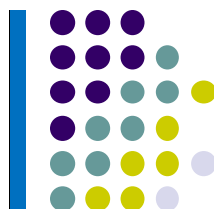


Photo: A. Mahmoud

Edvard I. Moser

Prize share: 1/4

"for their discoveries of cells that constitute a positioning system in the brain".



		CKD-1	CKD-2	CKD-3	CKD-4	CKD-5ND	CKD-5D
Sulfonylureas	Metformin	No adjustments		1,5g-850 mg/day*	500 mg/day**	Consider carefully/Awaiting further data	
	Chlorpropamide	No adjustments		100-125 mg/day	To be avoided		
	Acetohexamide	To be avoided					
	Tolazamide	To be avoided					
	Tolbutamide	250mg, 1-3 times/day					To be avoided
	Glipizide	No adjustments					
	Glicazide	Start at low doses and dose titration every 1-4 weeks					
	Glyburide	To be avoided					
	Glimepiride	Reduce dosage to 1 mg/day					To be avoided
	Gliquidone	No adjustments					
Meglitinides	Repaglinide	No adjustments					Limited experience available
	Nateglinide	No adjustments					Start at 60 mg/day
α-gluc inhibitors	Acarbose	No adjustments			Avoid if GFR<25mL/min	To be avoided	
	Miglitol	Limited experience available					
DPP-IV inhibitors	Pioglitazone	No adjustments					
	Sitagliptin	No adjustments		Reduce to 50 mg/day	Reduce to 25 mg/day		
	Vildagliptin	No adjustments		Reduce to 50 mg/once daily			
	Saxagliptin	No adjustments		Reduce to 2,5 mg/once daily			
	Linagliptin	No adjustments					
	Alogliptin	No adjustments		Reduce to 12,5 mg/daily			
Incretin Mimetics	Exenatide	No adjustments	Reduce dose to 5 mcg/once to twice daily		To be avoided		
	Liraglutide	Limited experience available					
	Lixisenatide	No adjustments	Careful use if GFR 80-50 mL/min				
SGLT-2 inhibitors	Pramlintide	Limited experience available					
	Dapagliflozin	Limited experience available					
	Canagliflozin	Reduced efficacy		Careful monitoring			To be avoided
	Empagliflozin	Limited experience available					

DKD and Basic Research:

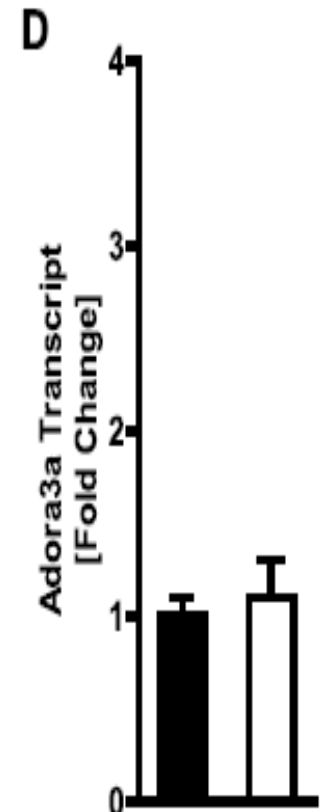
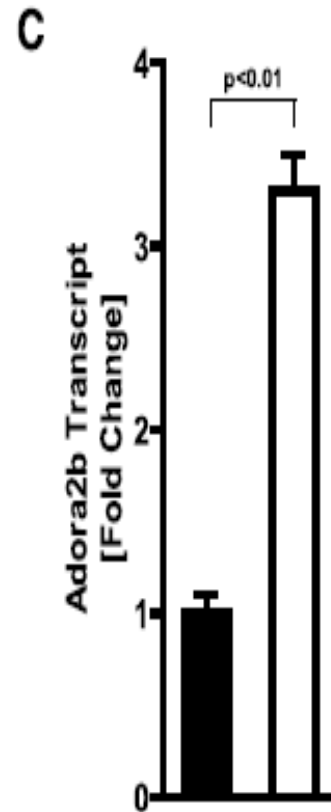
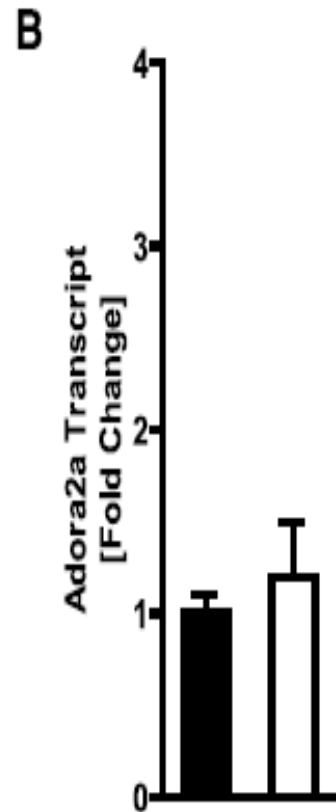
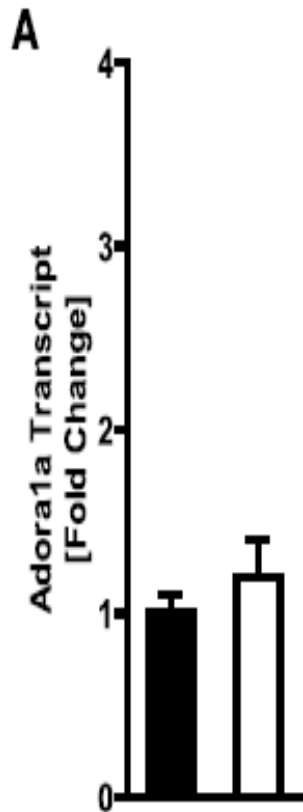
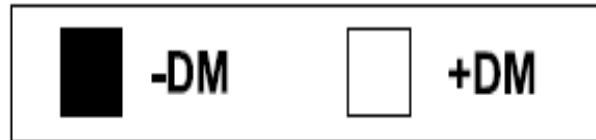
An Update



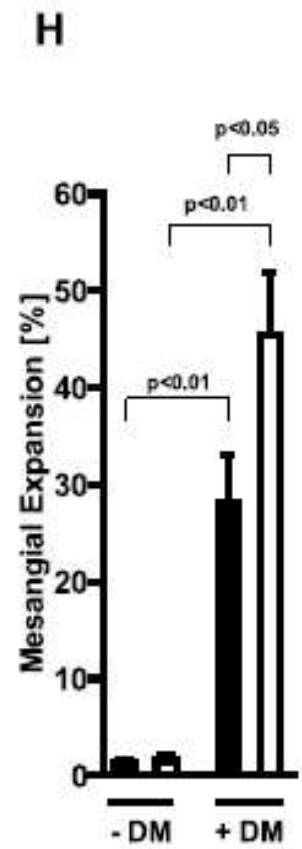
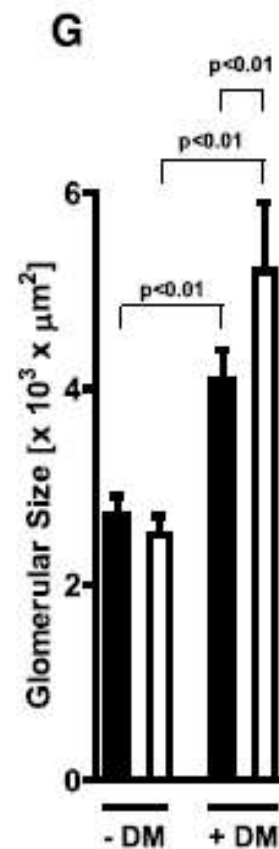
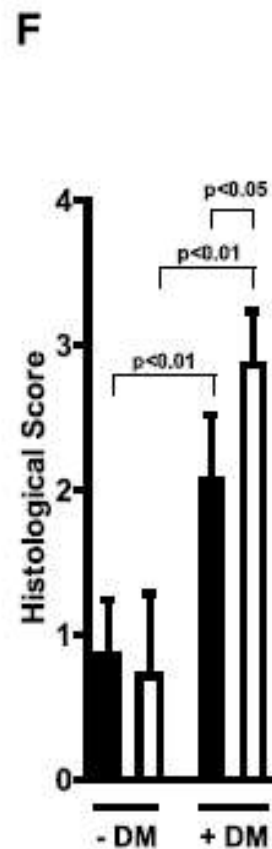
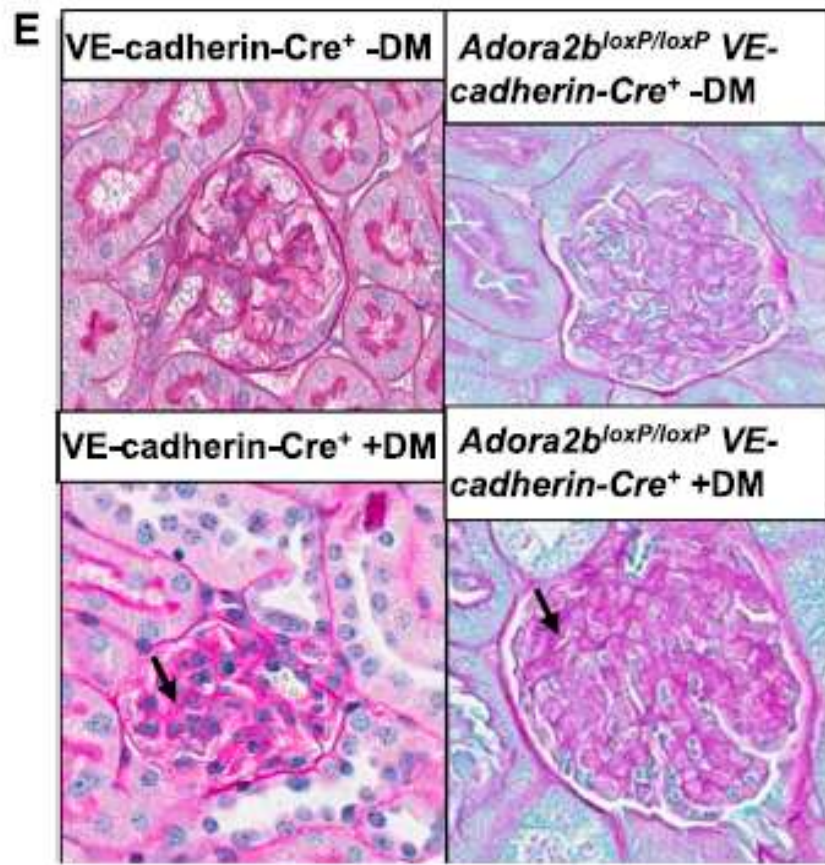
- **Adenosine**
- **HIF**
- **Endothelin-1**
- **MIOX**
- **Inflammasome**
- **TLR**
- **NOX**
- **TRAM34**
- **Renalase**
- **B7-1**
- **Angiopoeitin**
- **VEGF-A**

Proteinuria and hypertension in diabetes

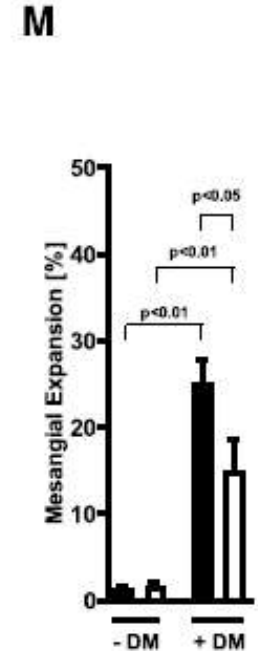
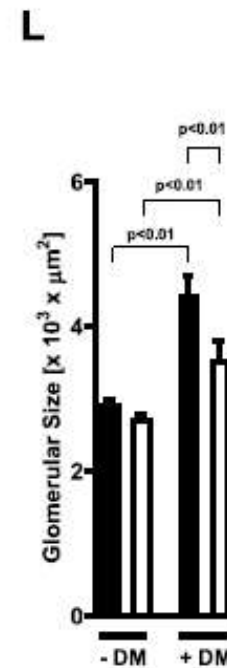
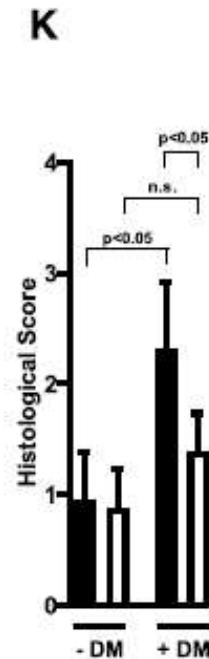
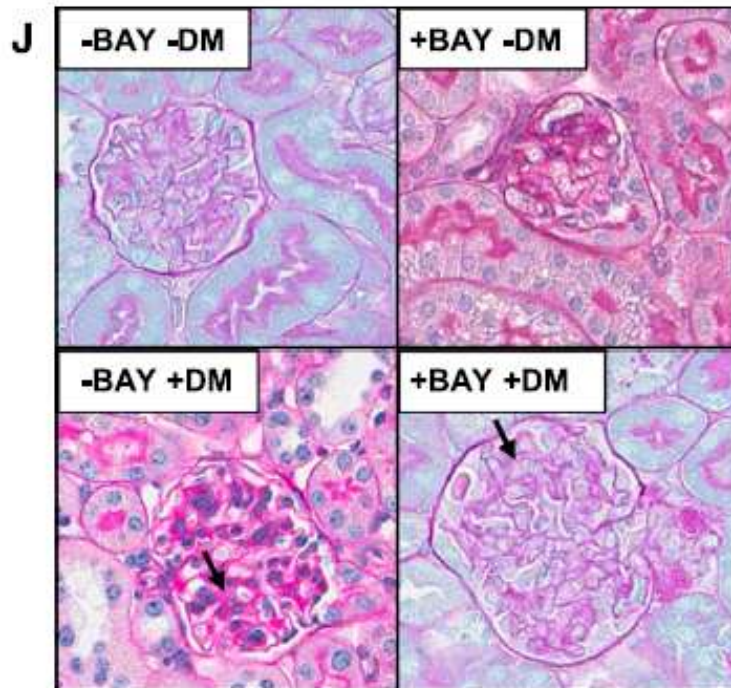
Adenosine Pathway



Adenosine Pathway



Adenosine Pathway



J Am Soc Nephrol 25: 547–563, 2014.

Adenosine Pathway



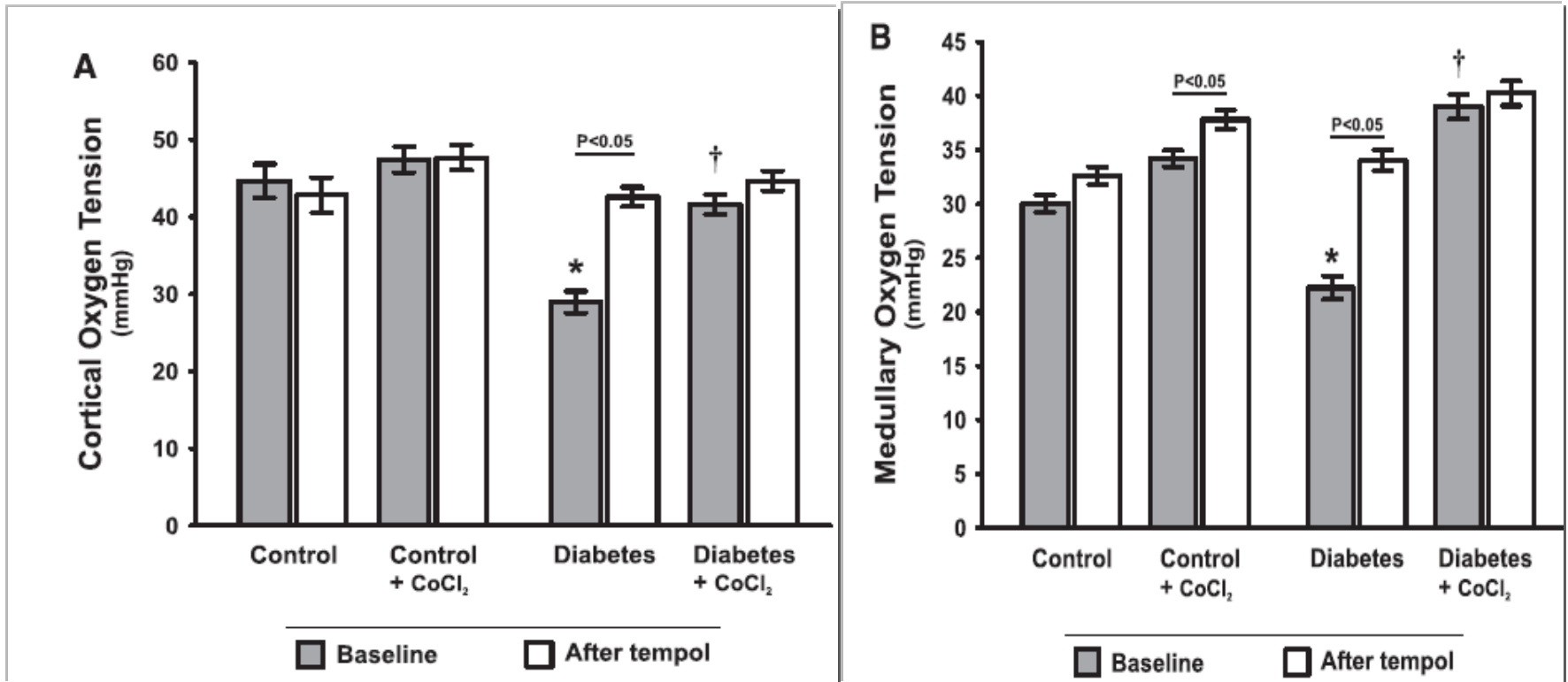
CD73-Dependent Generation of Adenosine and Endothelial Adora2b Signaling Attenuate Diabetic Nephropathy

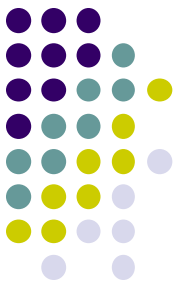
Eunyoung Tak,^{*} Douglas Ridyard,^{*} Jae-Hwan Kim,^{*†} Michael Zimmerman,[‡] Tilmann Werner,[§] Xiaoxin X. Wang,^{||¶} Uladzimir Shabeka,^{*} Seong-Wook Seo,^{*} Uwe Christians,^{*} Jost Klawitter,^{*} Radu Moldovan,^{**} Gabriela Garcia,^{||} Moshe Levi,^{||¶} Volker Haase,^{††} Katya Ravid,^{‡‡} Holger K. Eltzschig,^{*} and Almut Grenz^{*}

^{*}Department of Anesthesiology, [‡]Division of Transplant Surgery, Department of Surgery, ^{**}Advanced Light Microscopy Core Facility, and ^{||}Department of Medicine, School of Medicine, University of Colorado Denver, Aurora, Colorado; [†]Department of Anesthesiology, Korea University College of Medicine, Seoul, Korea; [§]Department of Anesthesiology, University Hospital, Regensburg, Germany, [¶]Veterans Affairs Medical Center, Aurora, Colorado; ^{††}Department of Medicine, Cancer Biology and Molecular Physiology and Biophysics, Vanderbilt University School of Medicine, Nashville, Tennessee; and ^{‡‡}Departments of Medicine and Biochemistry, Boston University School of Medicine, Boston, Massachusetts

J Am Soc Nephrol 25: 547–563, 2014.

Activation of HIF



**BASIC RESEARCH**www.jasn.org

Activation of Hypoxia-Inducible Factors Prevents Diabetic Nephropathy

Lina Nordquist,^{*} Malou Friederich-Persson,^{*} Angelica F...
Masaomi Nangaku,[‡] Peter Hansell,^{*} and Fredrik Palm^{*§||}

^{*}Division of Integrative Physiology, Department of Medical Cell Biology and Radiation Science, Uppsala University, Uppsala, Sweden; [‡]Division of ... of Tokyo School of Medicine, Tokyo, Japan; and [§]Division of Drug Rese... Sciences and ^{||}Center for Medical Image Science and Visualization, Linkö...

EDITORIALwww.jasn.org

A Breath of Fresh Air for Diabetic Nephropathy

Volker H. Haase^{*†}

^{*}Division of Nephrology and Hypertension, Departments of Medicine, Cancer Biology, and Molecular Physiology and Biophysics, Vanderbilt University School of Medicine, Nashville, Tennessee, and [†]Medicine and Research Services, Department of Veterans Affairs Hospital, Tennessee Valley Healthcare System, Nashville, Tennessee

Endothelin-1 Pathway

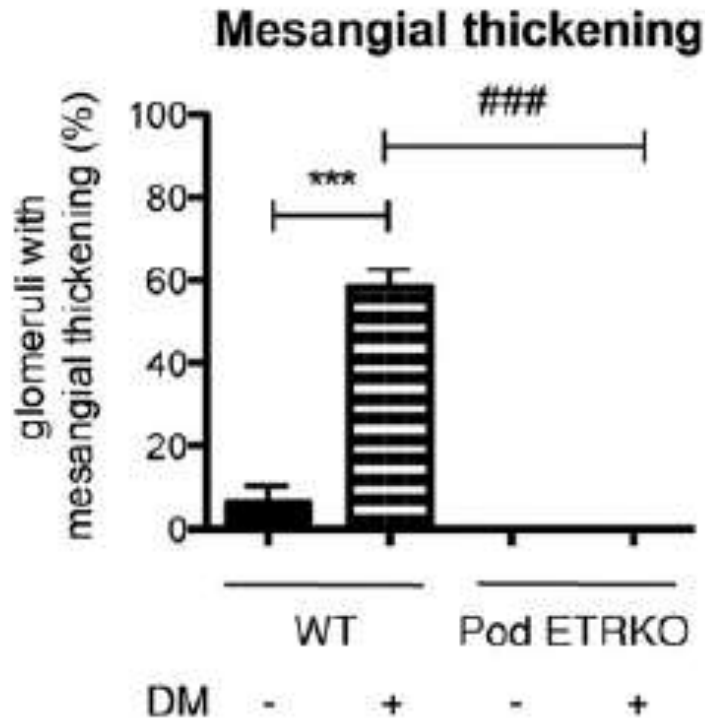


Direct Action of Endothelin-1 on Podocytes Promotes Diabetic Glomerulosclerosis

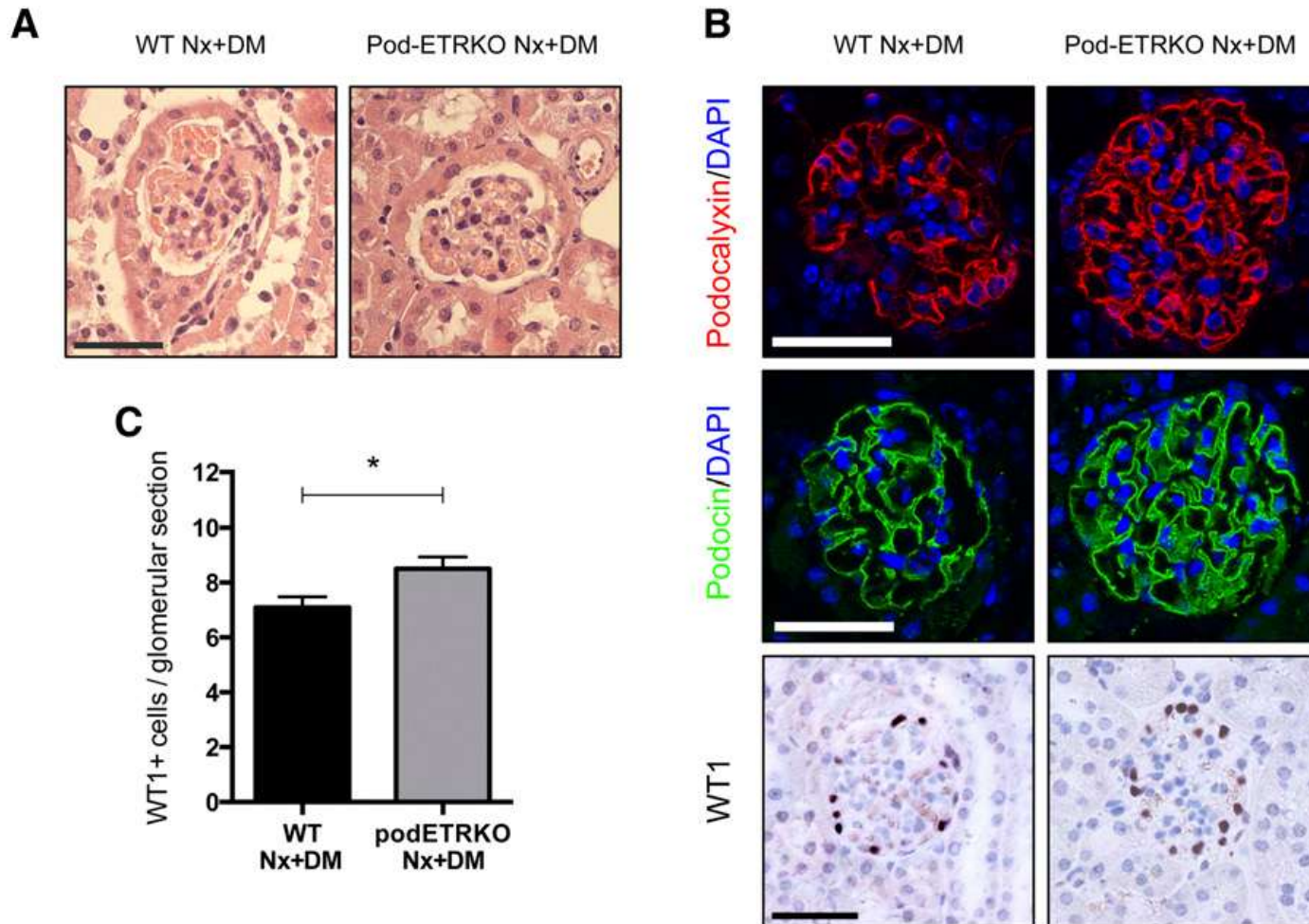
Olivia Lenoir,^{*†} Marine Milon,^{*†} Anne Virsolvy,[‡] Carole Hénique,^{*†} Alain Schmitt,^{†§||}
Jean-Marc Massé,^{†§||} Yuri Kotelevtsev,^{||**} Masashi Yanagisawa,^{††} David J. Webb,^{||}
Sylvain Richard,[‡] and Pierre-Louis Tharaux^{*†††}

^{*}Paris Cardiovascular Research Centre, Institut National de la Santé et de la Recherche Médicale, Paris, France;
[†]Université Paris Descartes, Sorbonne Paris Cité, Paris, France; [‡]Physiologie et Médecine expérimentale du Cœur et des Muscles, Institut National de la Santé et de la Recherche Médicale U1046, Université Montpellier 1, Université Montpellier 2, Montpellier, France; [§]Transmission Electron Microscopy Platform, Institut National de la Santé et de la Recherche Médicale U1016, Cochin Institut, Paris, France; ^{||}Centre National de la Recherche Scientifique UMR81044, Paris, France; ^{||}The Queen's Medical Research Institute, University of Edinburgh, Edinburgh, United Kingdom; ^{**}Pushchino State Institute for Natural Sciences, Pushchino, Moscow Region, Russian Federation; ^{††}University of Texas Southwestern Medical Center, Dallas, Texas; and ^{†††}Nephrology Service, Georges Pompidou European Hospital, Assistance Publique Hopitaux de Paris, Paris, France

Endothelin-1 Pathway



Endothelin-1 Pathway



MIOX Pathway



BASIC RESEARCH

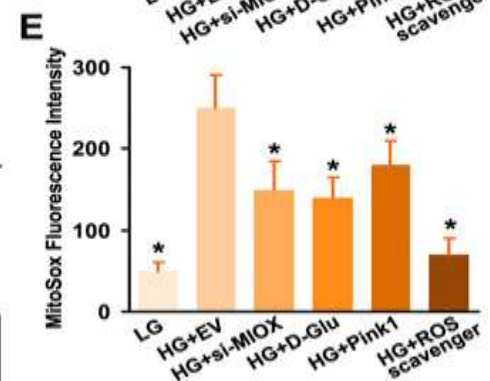
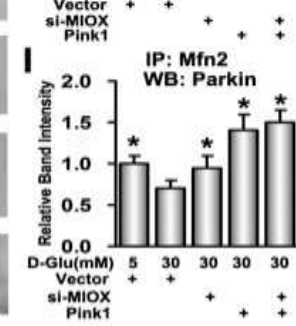
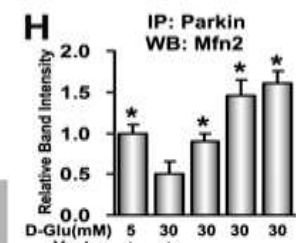
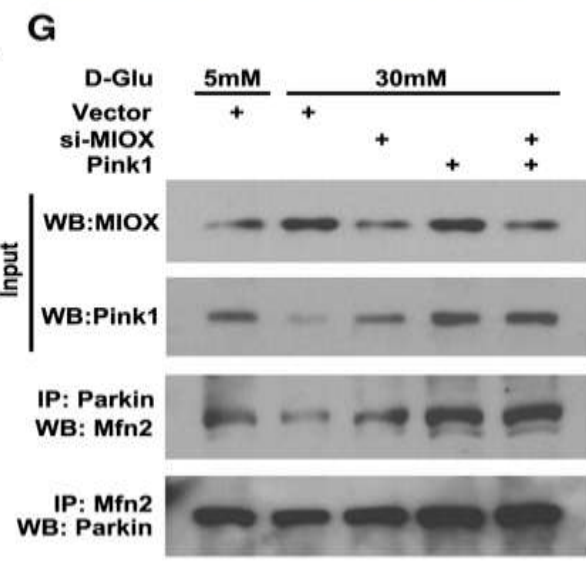
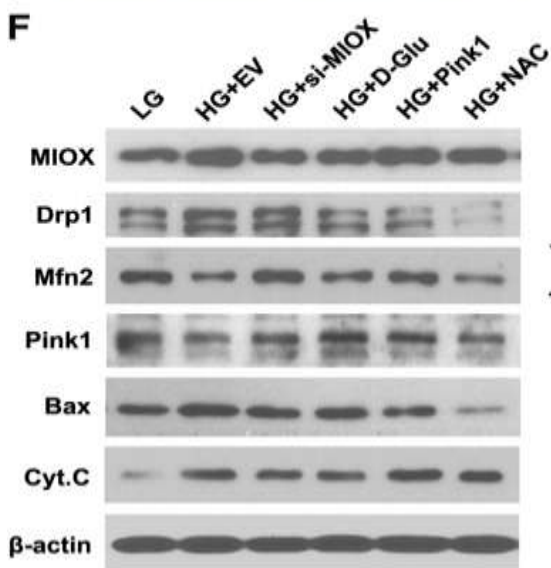
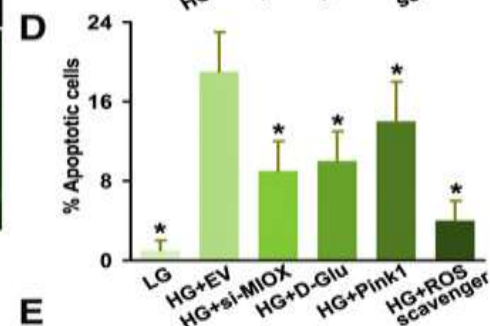
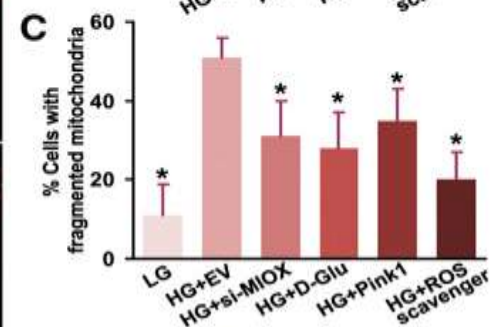
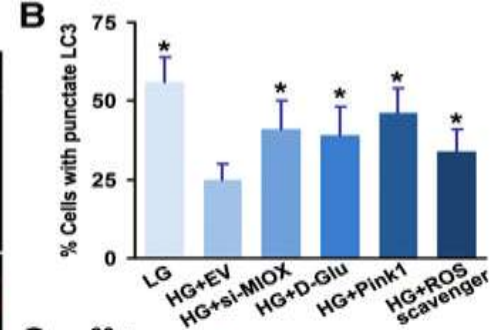
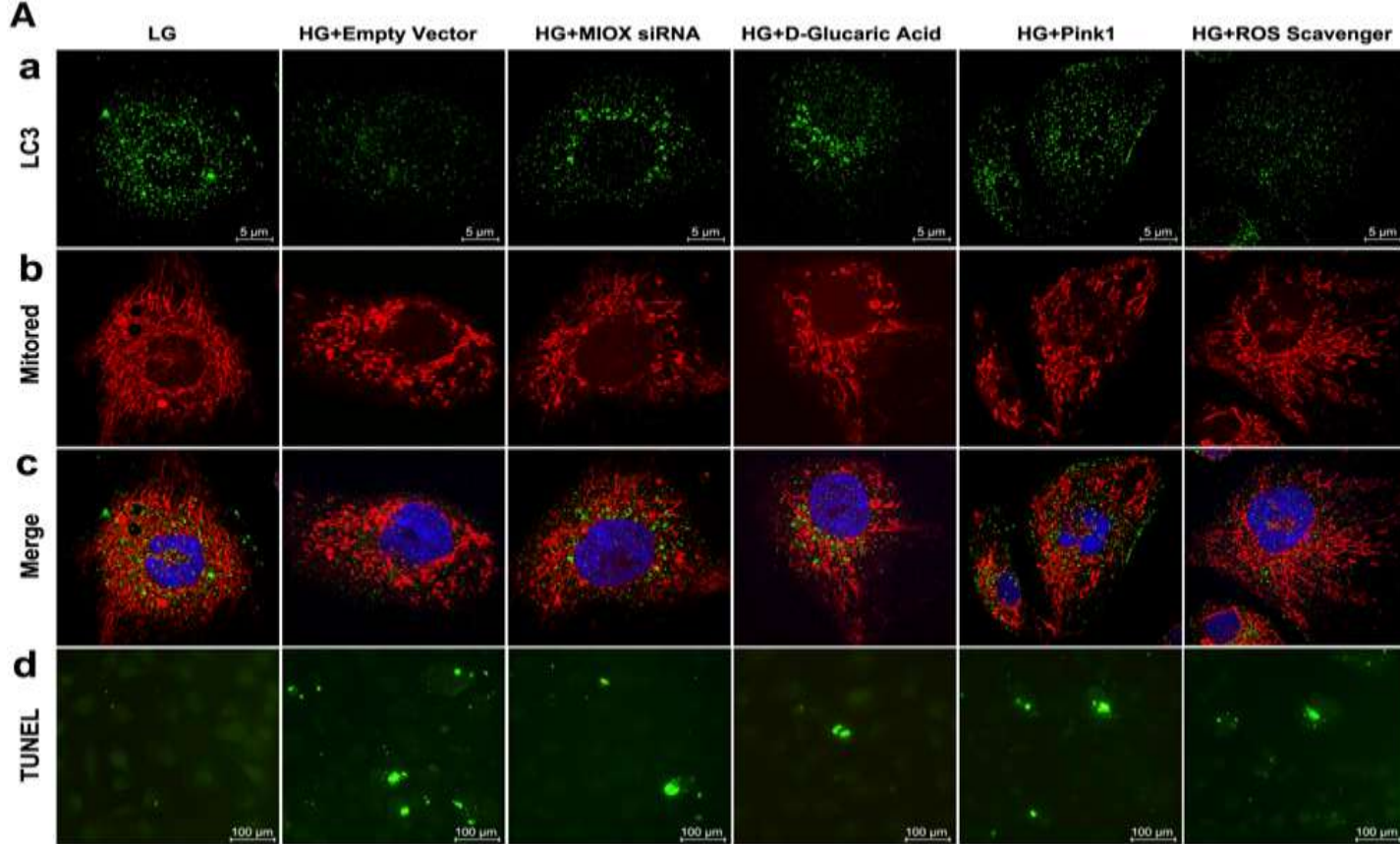
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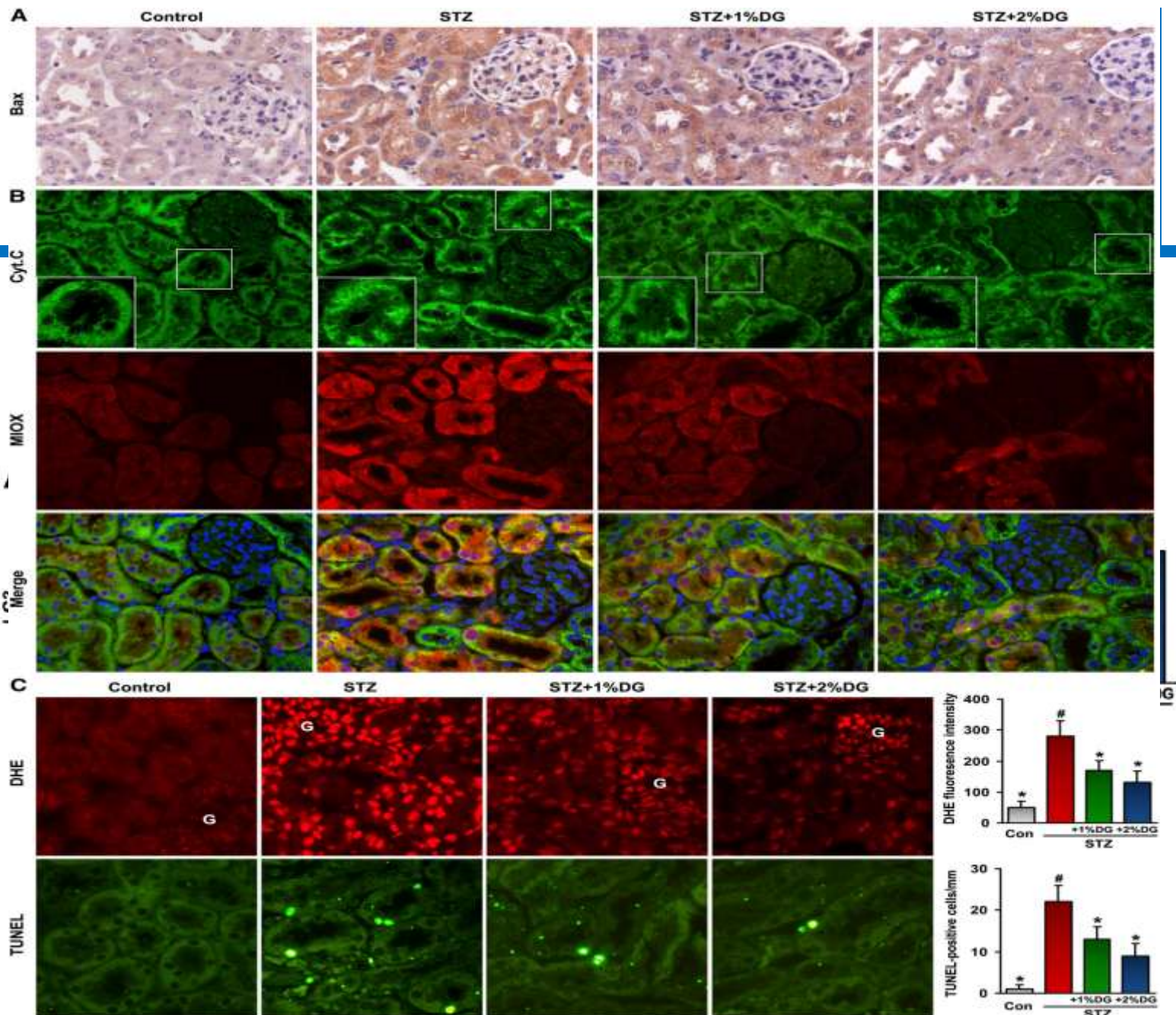
Disruption of Renal Tubular Mitochondrial Quality Control by *Myo*-Inositol Oxygenase in Diabetic Kidney Disease

Ming Zhan, Irtaza M. Usman, Lin Sun, and Yashpal S. Kanwar

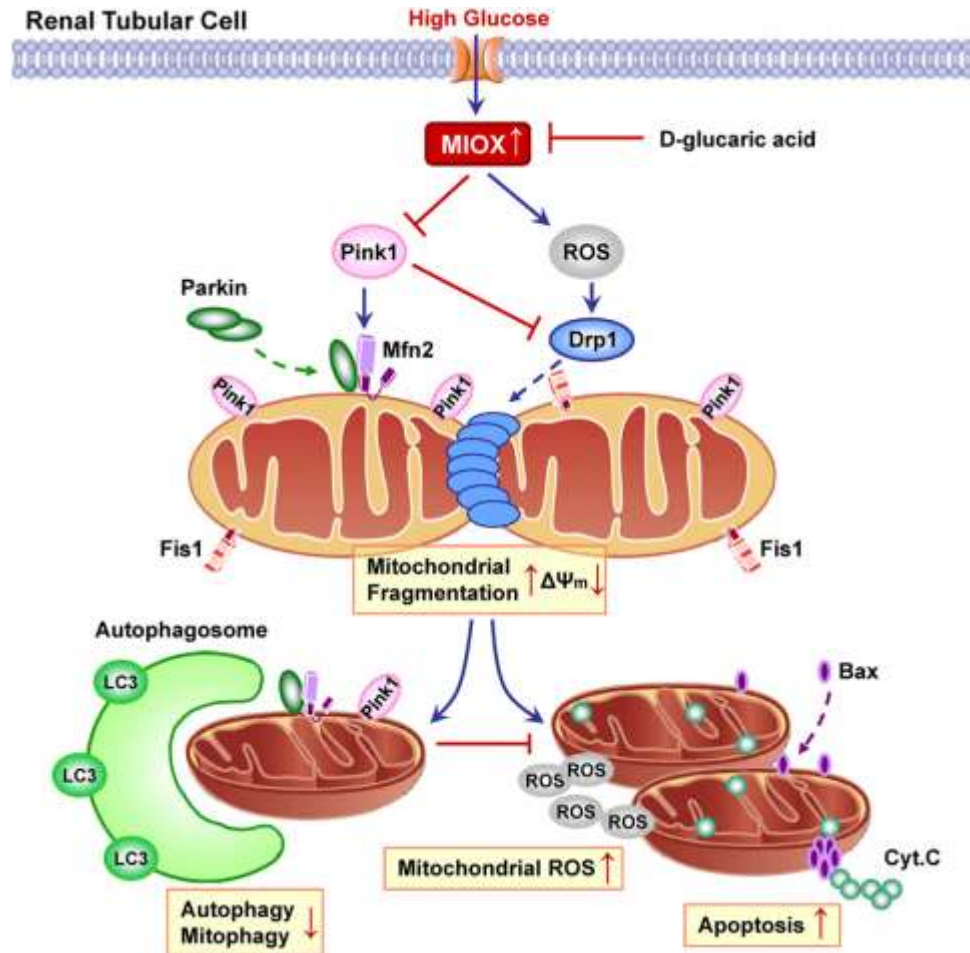
Departments of Pathology and Medicine, Northwestern University, Chicago, Illinois

J Am Soc Nephrol 2015 in press

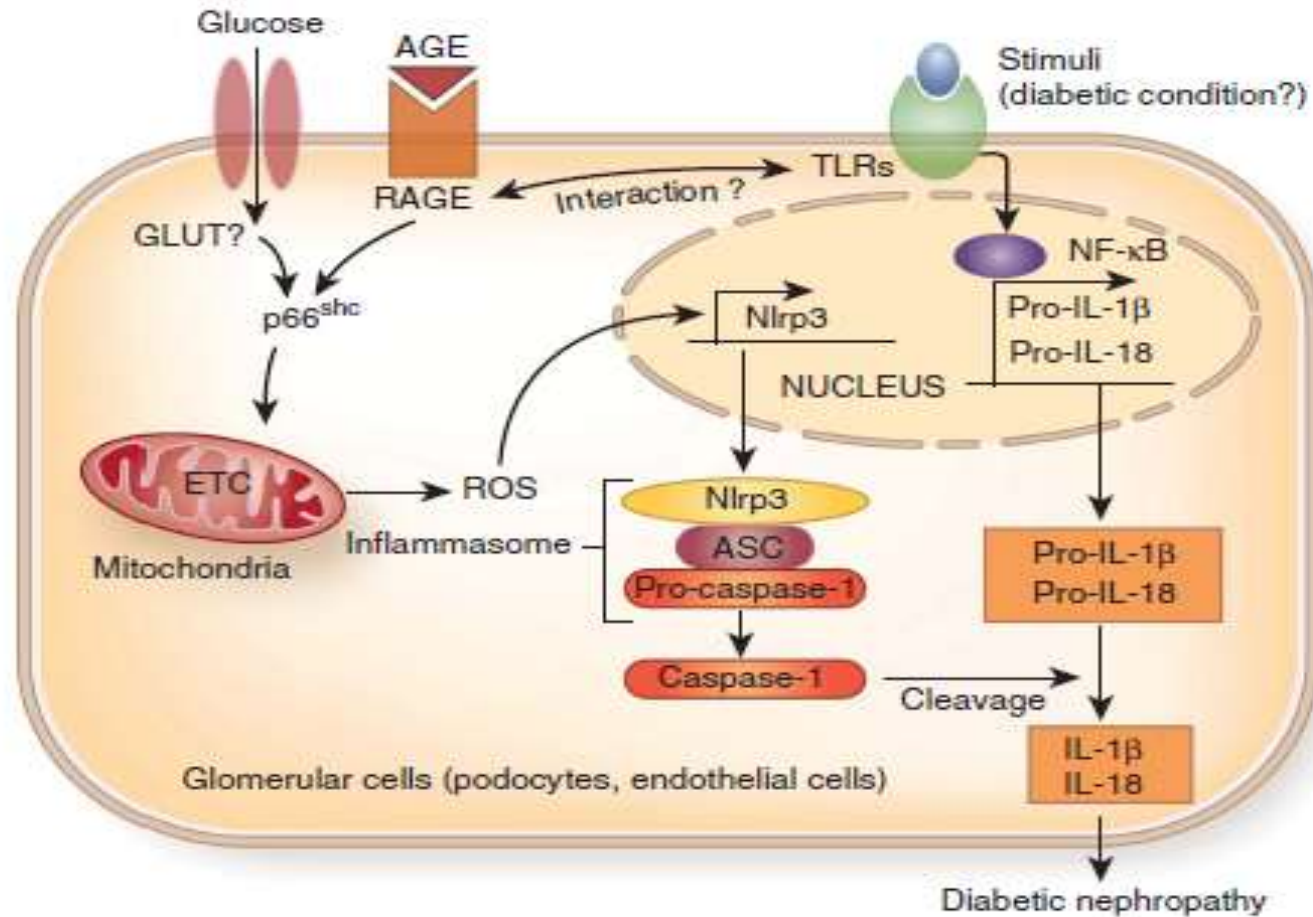




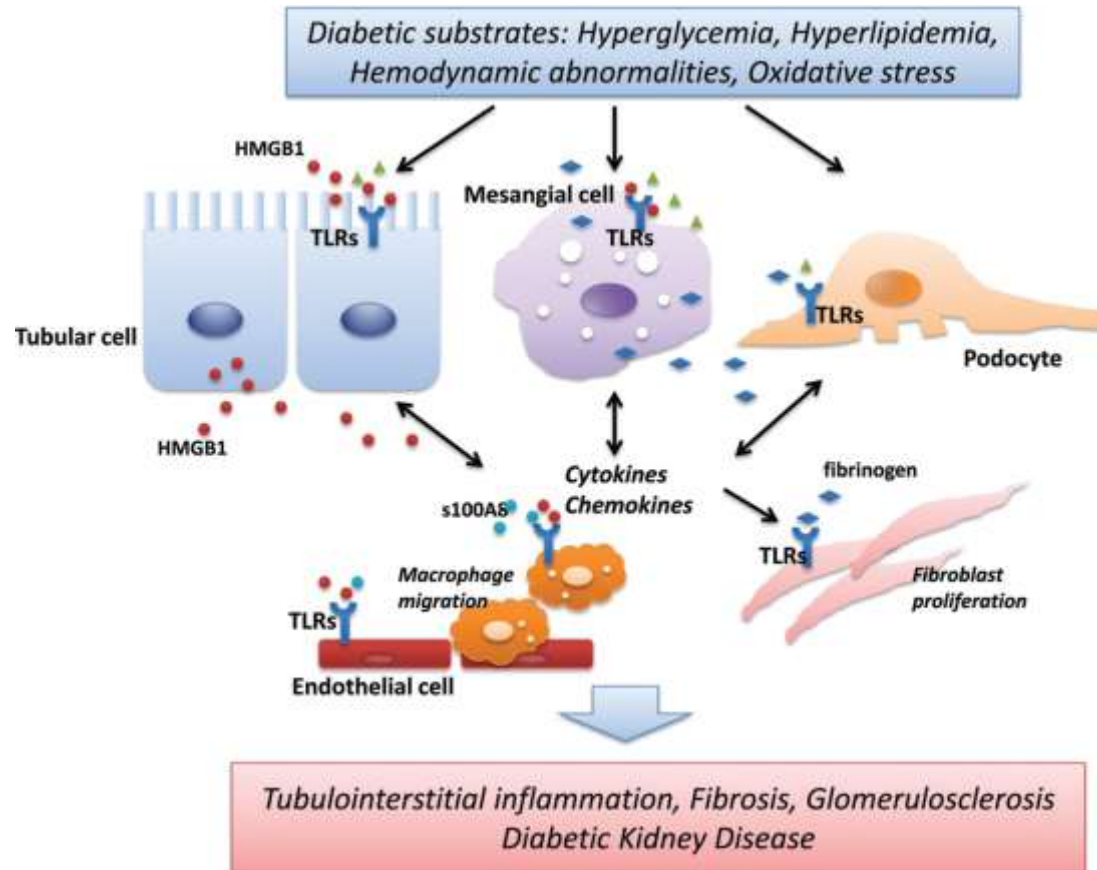
MIOX Pathway



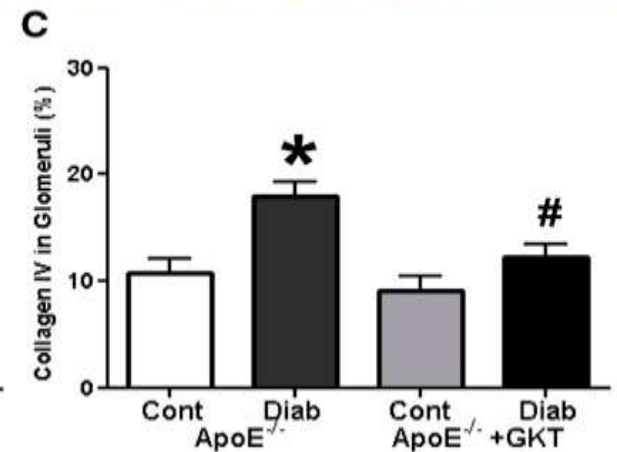
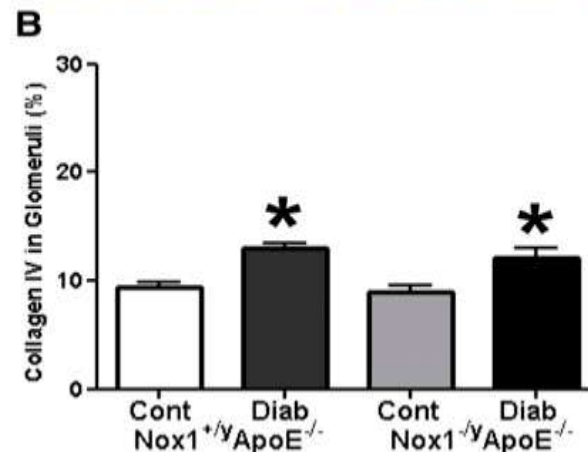
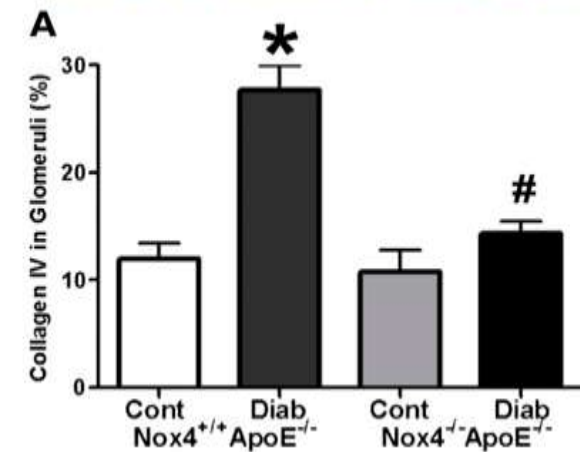
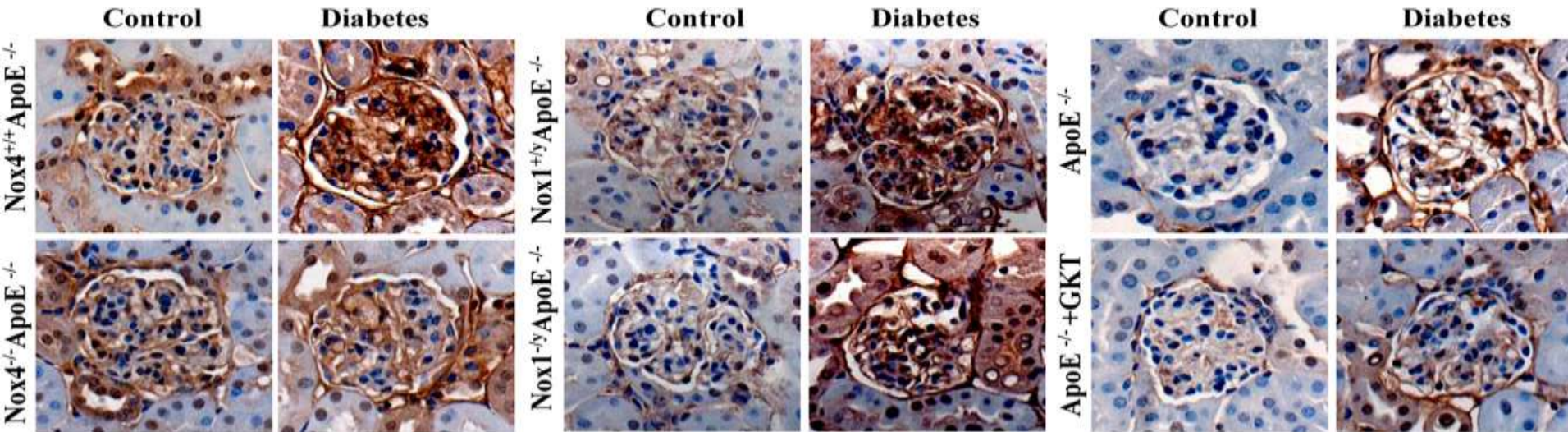
Nlrp3 Inflammasome



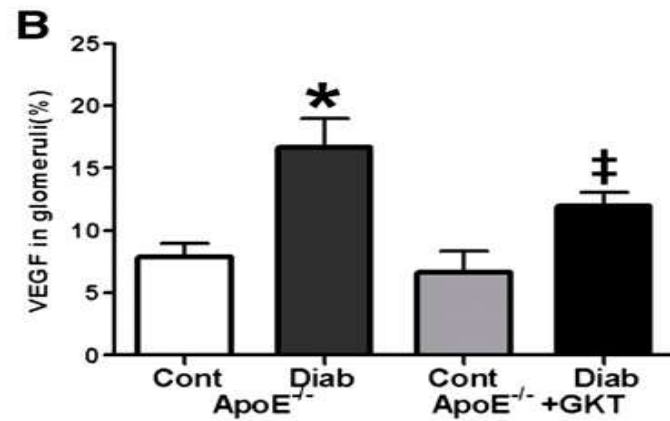
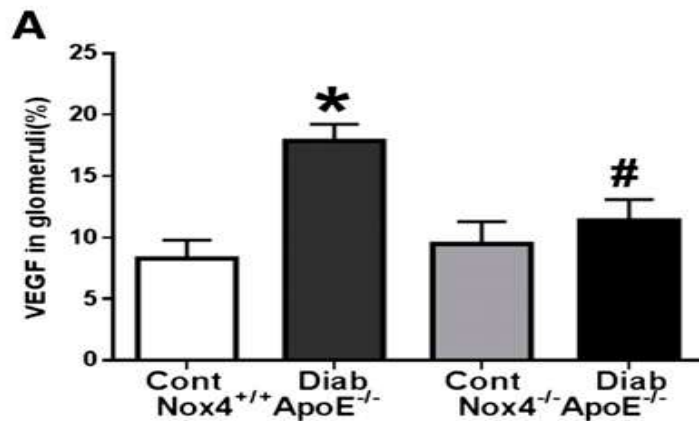
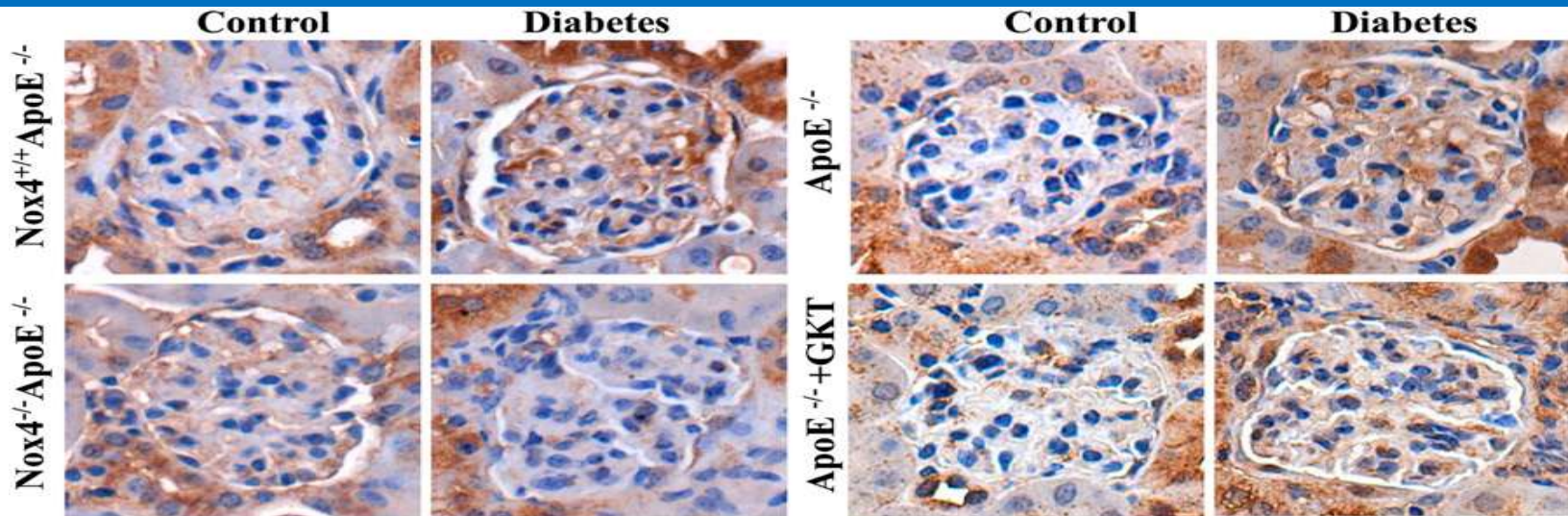
TLRs



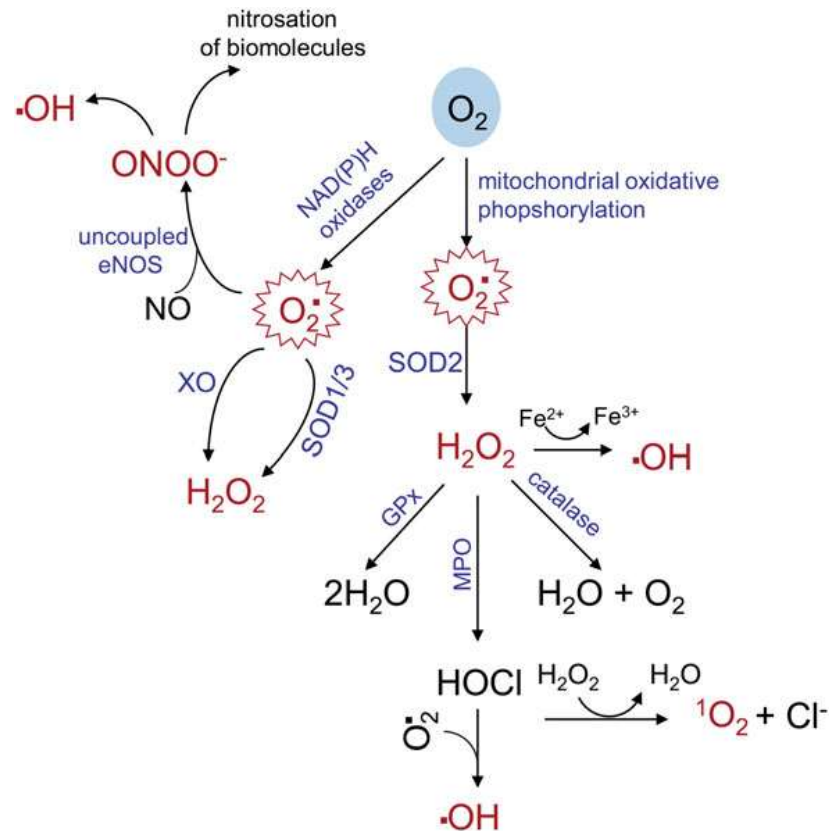
NOX Pathway



NOX Pathway



NOX and ROS



$\text{O}_2^{\bullet -}$ - superoxide anion
 $^1\text{O}_2$ - singlet oxygen
 HOCl- hypochlorous acid
 H_2O_2 - hydrogen peroxide
 ONOO^- - peroxynitrite
 •OH - hydroxyl radical
 SOD – superoxide dismutase
 GPx – glutathione peroxidase
 MPO – myeloperoxidase
 XO – xanthine oxidase
 NOS – nitric oxide synthase

TRAM 34



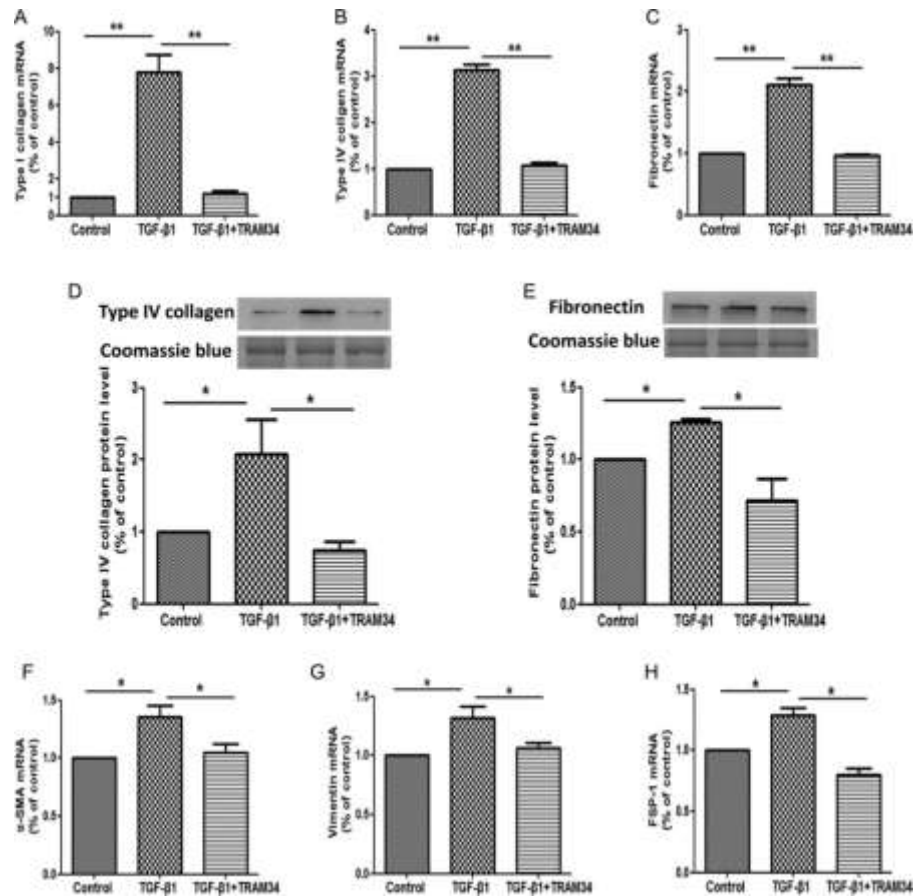
KCa3.1 mediates activation of fibroblasts in diabetic renal interstitial fibrosis

Chunling Huang^{1,2}, Sylvie Shen¹, Qing Ma¹, Anthony Gill³, Carol A. Pollock¹ and Xin-Ming Chen¹

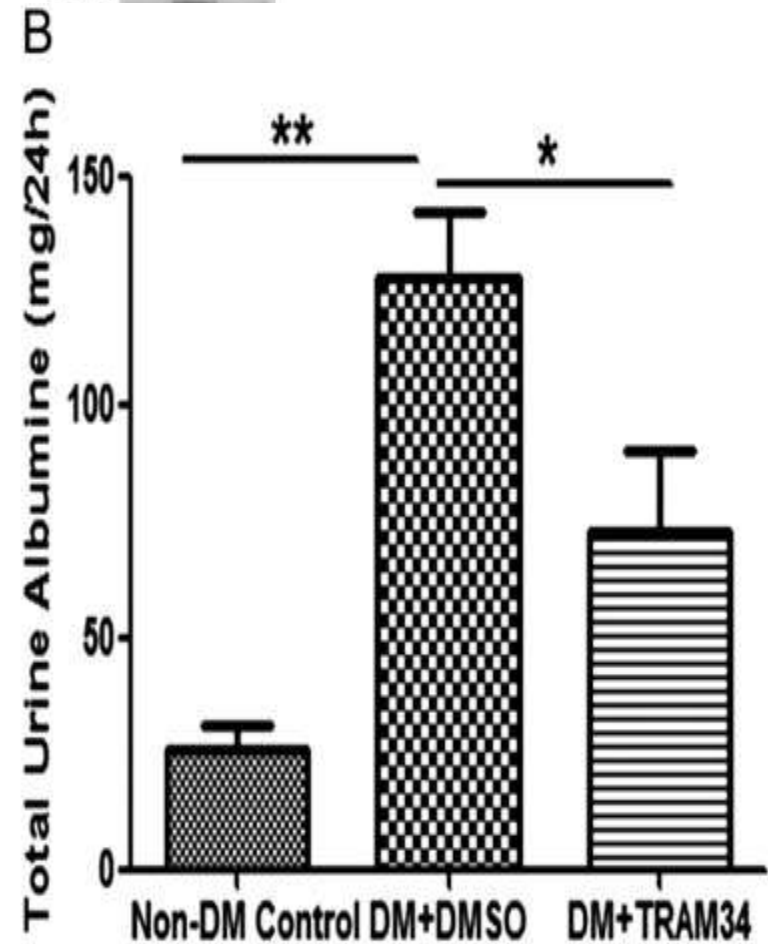
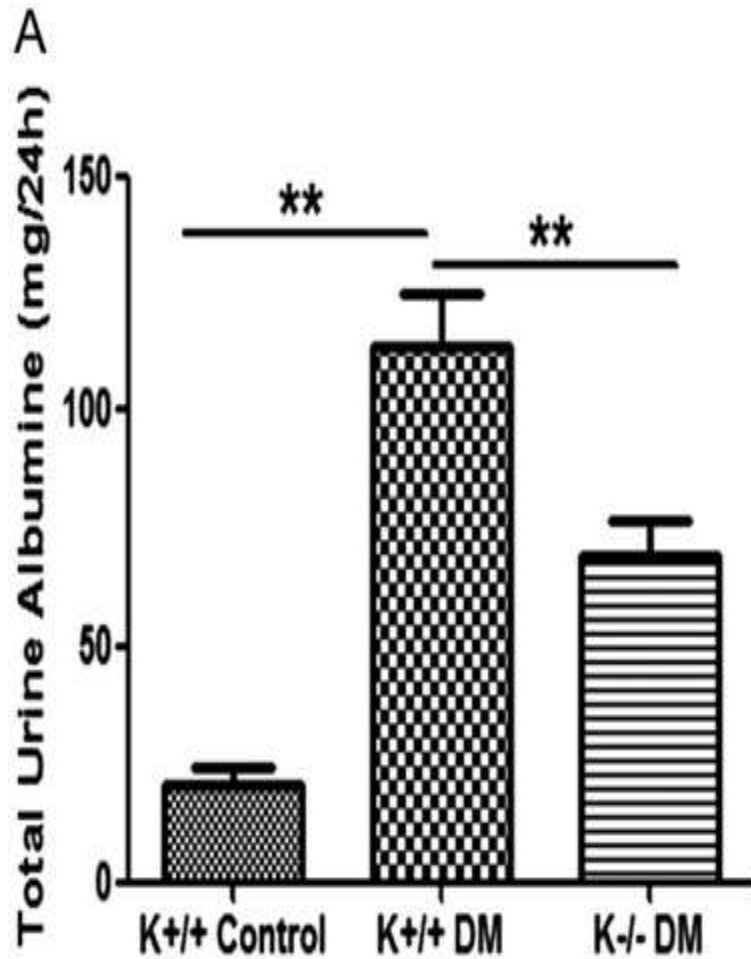
¹Kolling Institute of Medical Research, Sydney medical school and University of Sydney, Royal North Shore Hospital, St Leonards, Sydney, NSW, Australia, ²Xiamen Center of Clinical Laboratory, Xiamen Zhongshan Hospital, Medical College of Xiamen University, Xiamen, China and ³Department of Anatomical Pathology, Royal North Shore Hospital, St Leonards, Sydney, NSW, Australia

Nephrol Dial Transplant (2014) 29: 313–324

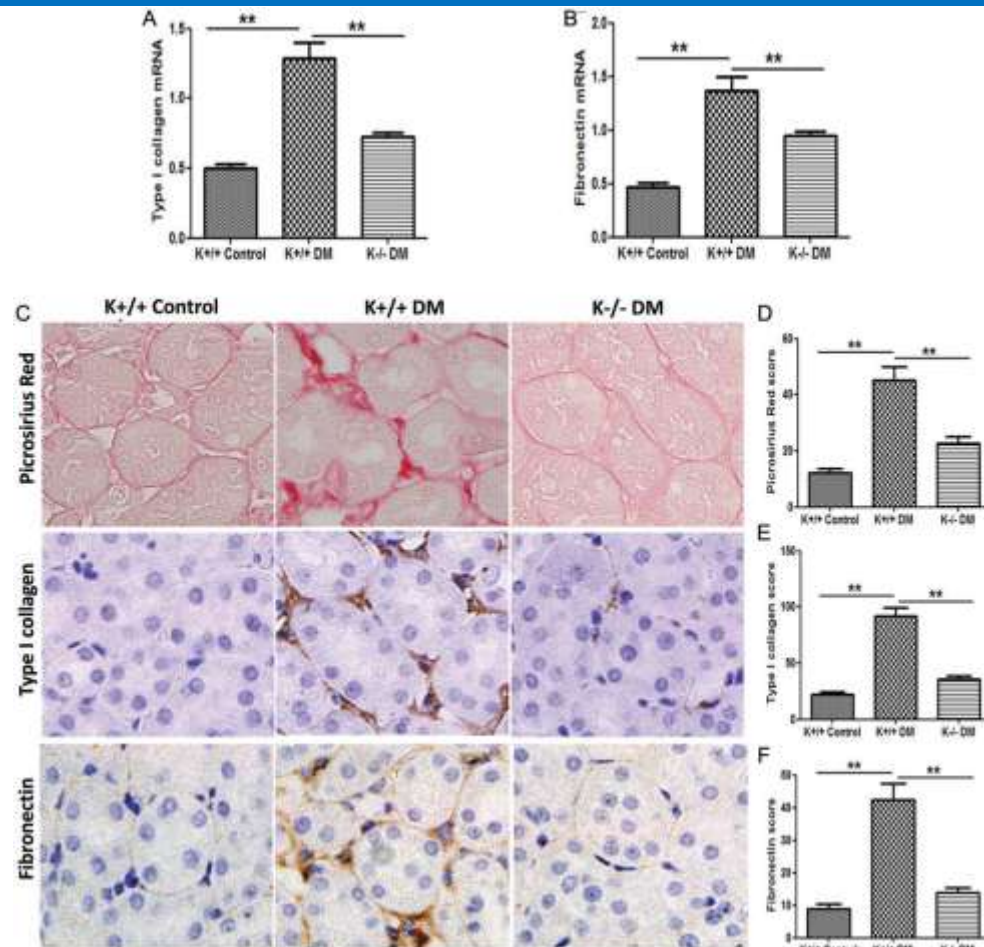
TRAM 34



TRAM 34



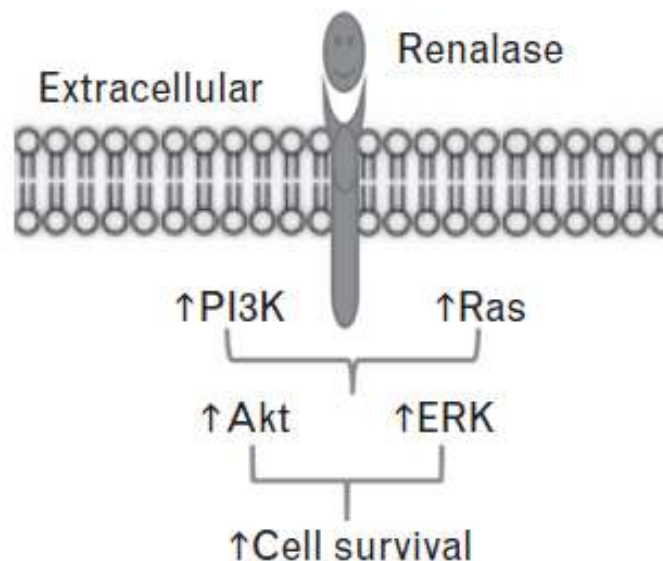
TRAM 34



Renalase



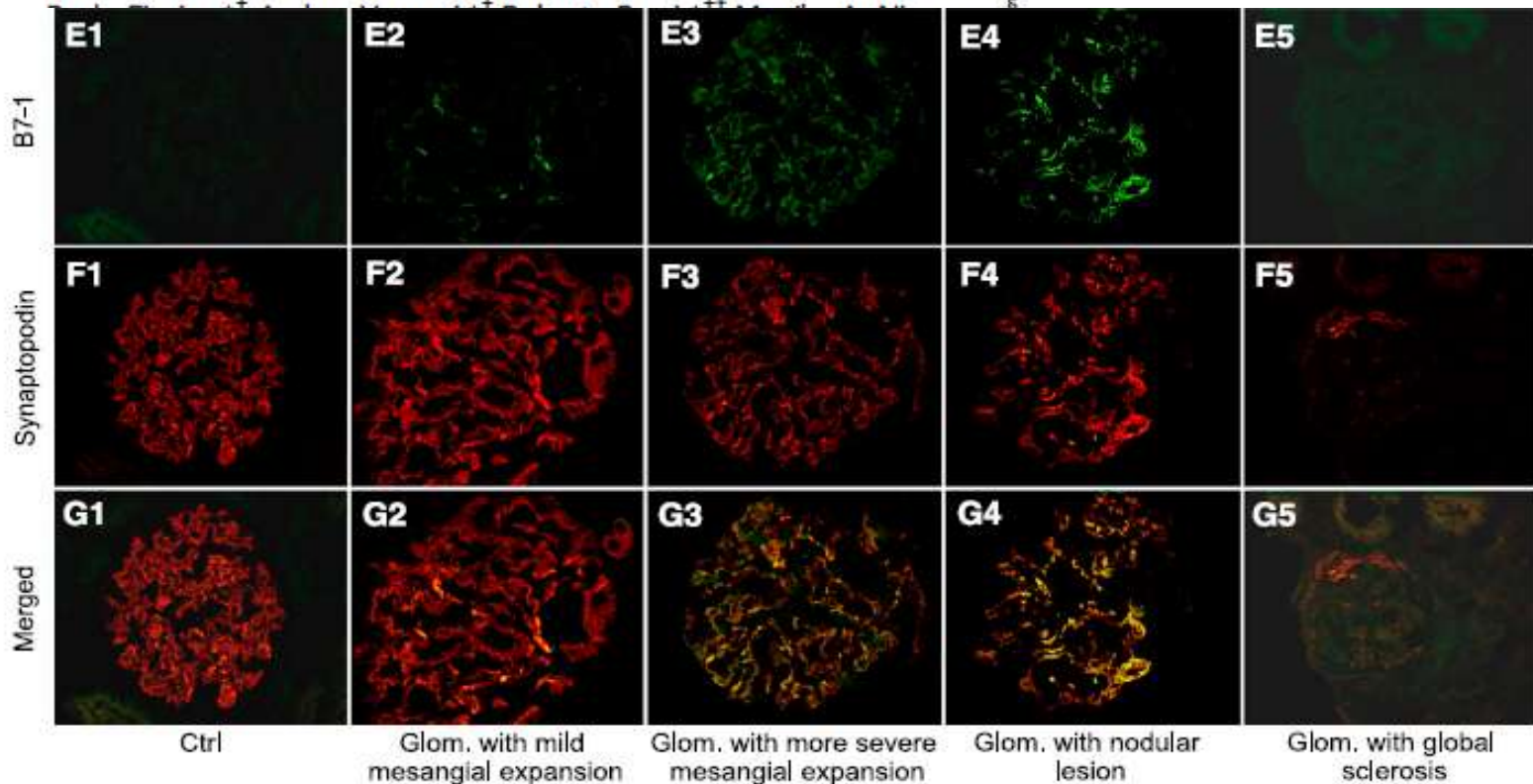
Renalase: its role as a cytokine, and an update on its association with type 1 diabetes and ischemic stroke



Podocyte B7-1

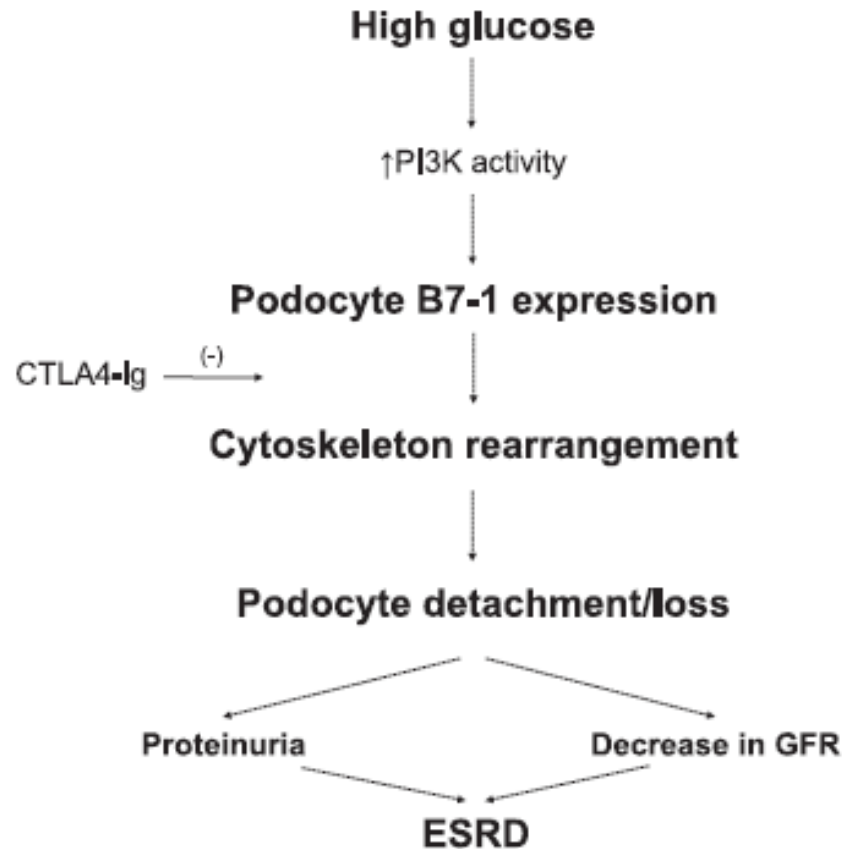
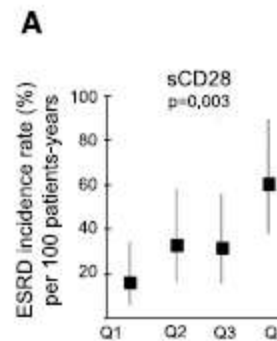


Role of Podocyte B7-1 in Diabetic Nephropathy



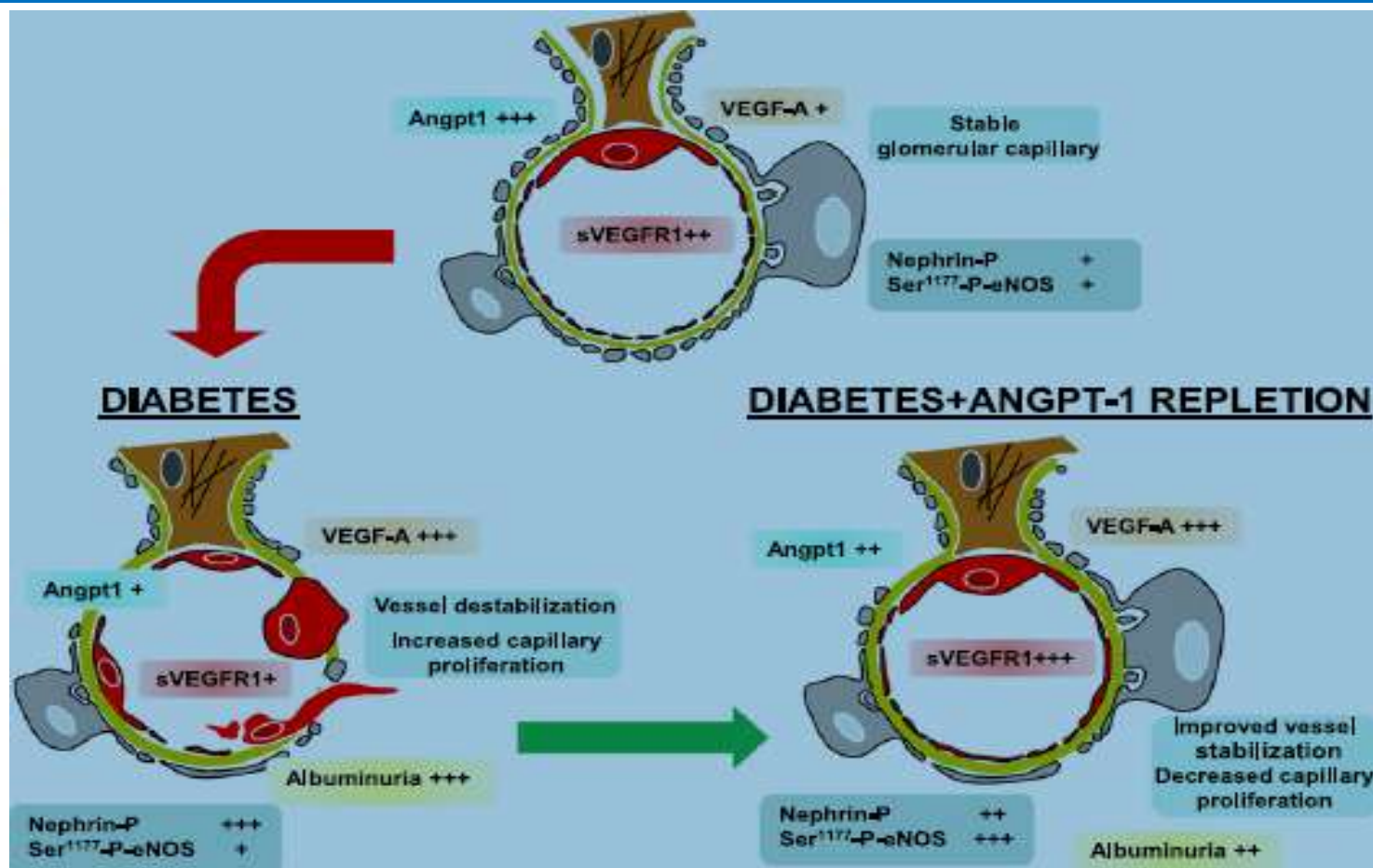
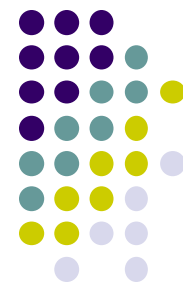
J Am Soc Nephrol 25: 1415–1429, 2014

Podocyte B7-1



	OR (95% CI)	P value
	1,0 (ref)	
	1,9 (0,7, 5,4)	0,78
	2,0 (0,7, 5,5)	0,8
	5,5 (2,0, 14,7)	0,0005
del	1,0 (ref)	
	2,8 (1,0, 7,8)	0,04

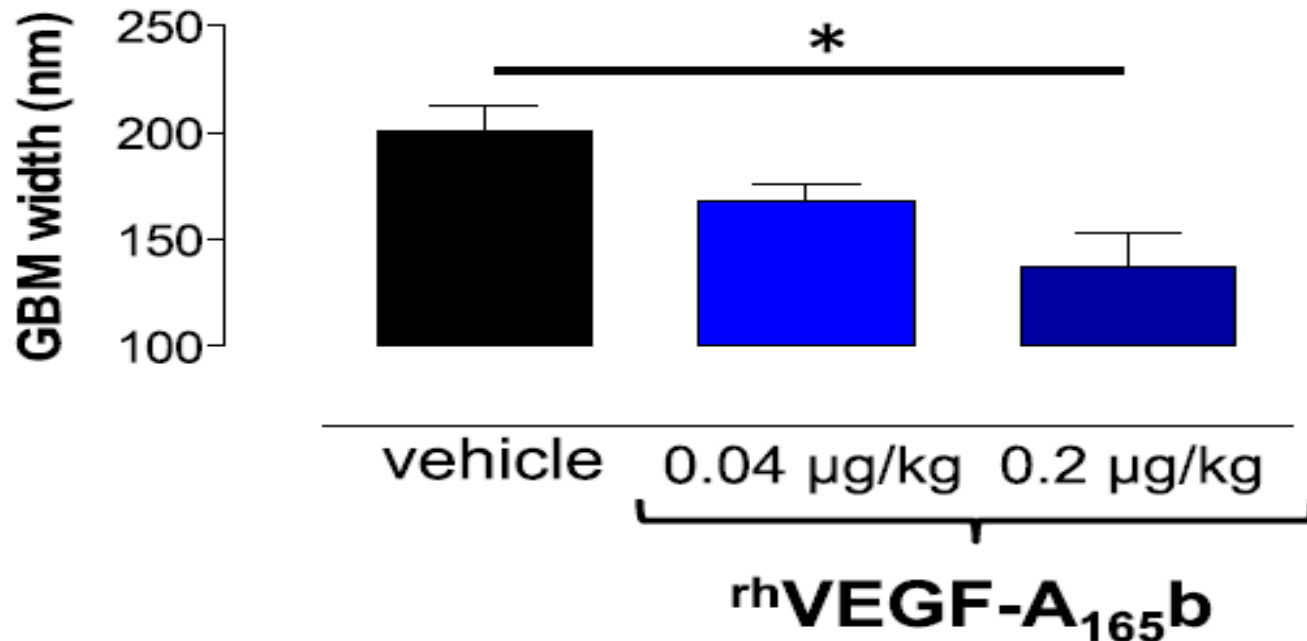
Angiopoietin-1



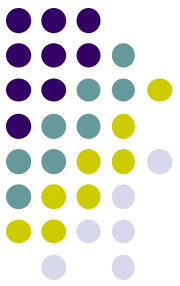
VEGF-A



Vascular Endothelial Growth Factor-A₁₆₅b Is Protective and Restores Endothelial Glycocalyx in Diabetic Nephropathy



Diabetic Nephropathy and Urine Proteases



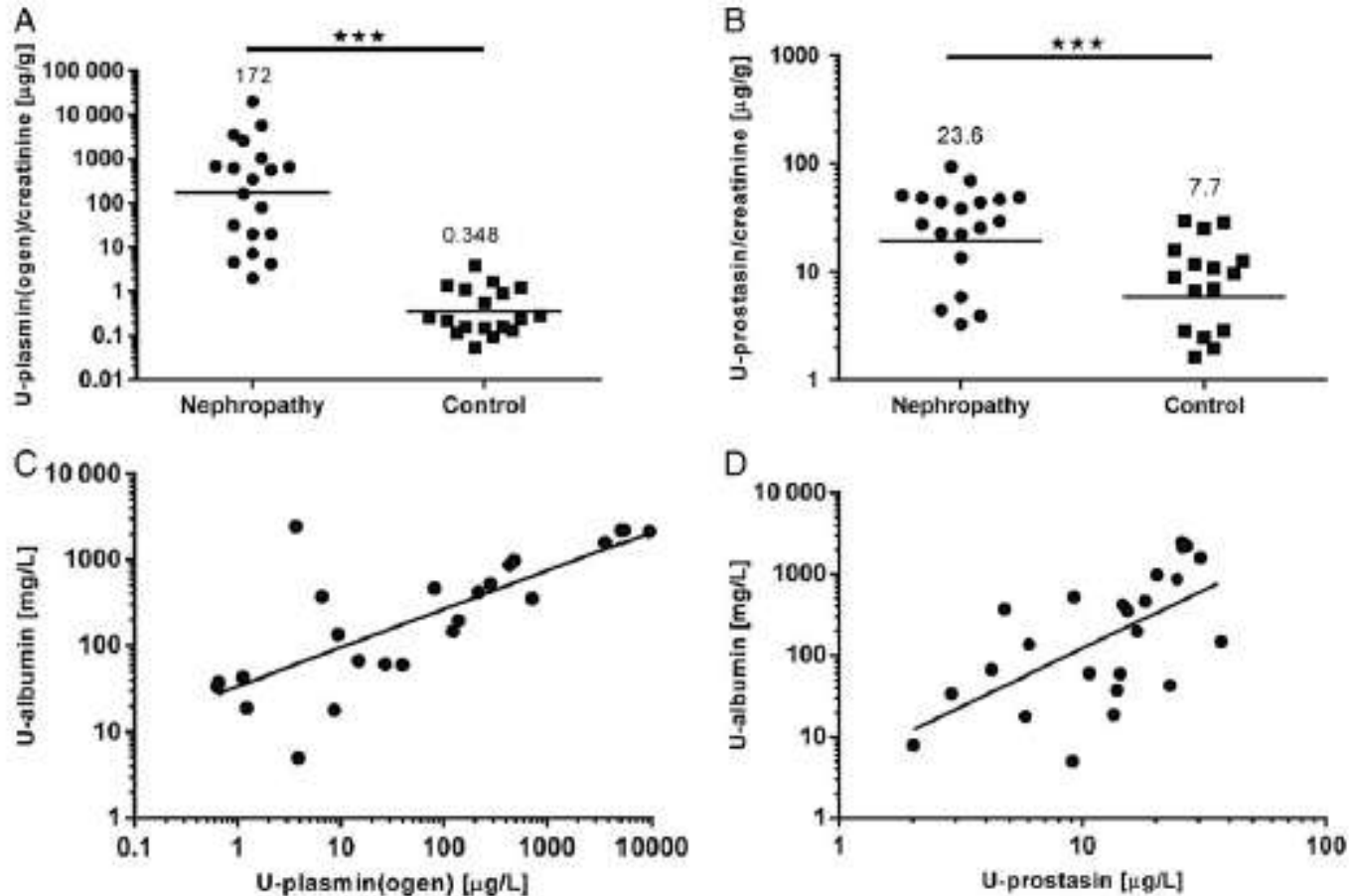
Patient characteristics		
Patient group	Nephropathy	Control
Number of patients	19	20
Females	7/19	7/20
Age (years)	48.8 ± 3.0	52.7 ± 2.6
Diabetes duration (years)	32.8 ± 3.0	33.9 ± 2.8
HbA1c % (mmol/mol)	8.4 ± 0.5 (68 ± 5.4)	8.0 ± 0.3 (64 ± 0.1)
24-h urinary total protein excretion (g/24 h)	1.8 ± 0.5***	0.07 ± 0.03
Urinary albumin/creatinine-ratio (mg/g)	960.4 ± 258.0***	5.7 ± 2.2
Creatinine clearance (mL/min)	56.9 ± 7.0***	101.3 ± 6.3
24-h urinary sodium excretion (mmol/24 h)	155.8 ± 18.1	171.4 ± 16.7
24-h urinary Na ⁺ /K ⁺ ratio	0.41 ± 0.06	0.33 ± 0.03
24-h systolic blood pressure (mmHg)	144 ± 3.8*	132 ± 2.7
24-h diastolic blood pressure (mmHg)	79 ± 2.0	75 ± 1.4
Antihypertensive drugs ^a	3.0 ± 0.4**	1.4 ± 0.3
Hypertensive patients ^b	19/19	13/19
Degree of diabetic retinopathy ^c	3.4 (95% CI: 2.9–3.9)	3.0 (95% CI: 2.5–3.5)
Diabetic neuropathy	3/19	2/20
Body mass index (kg/m ²)	26.9 ± 1.0	26.7 ± 0.9

^aNumber of antihypertensive drugs including diuretics, but excluding amiloride and spironolactone.

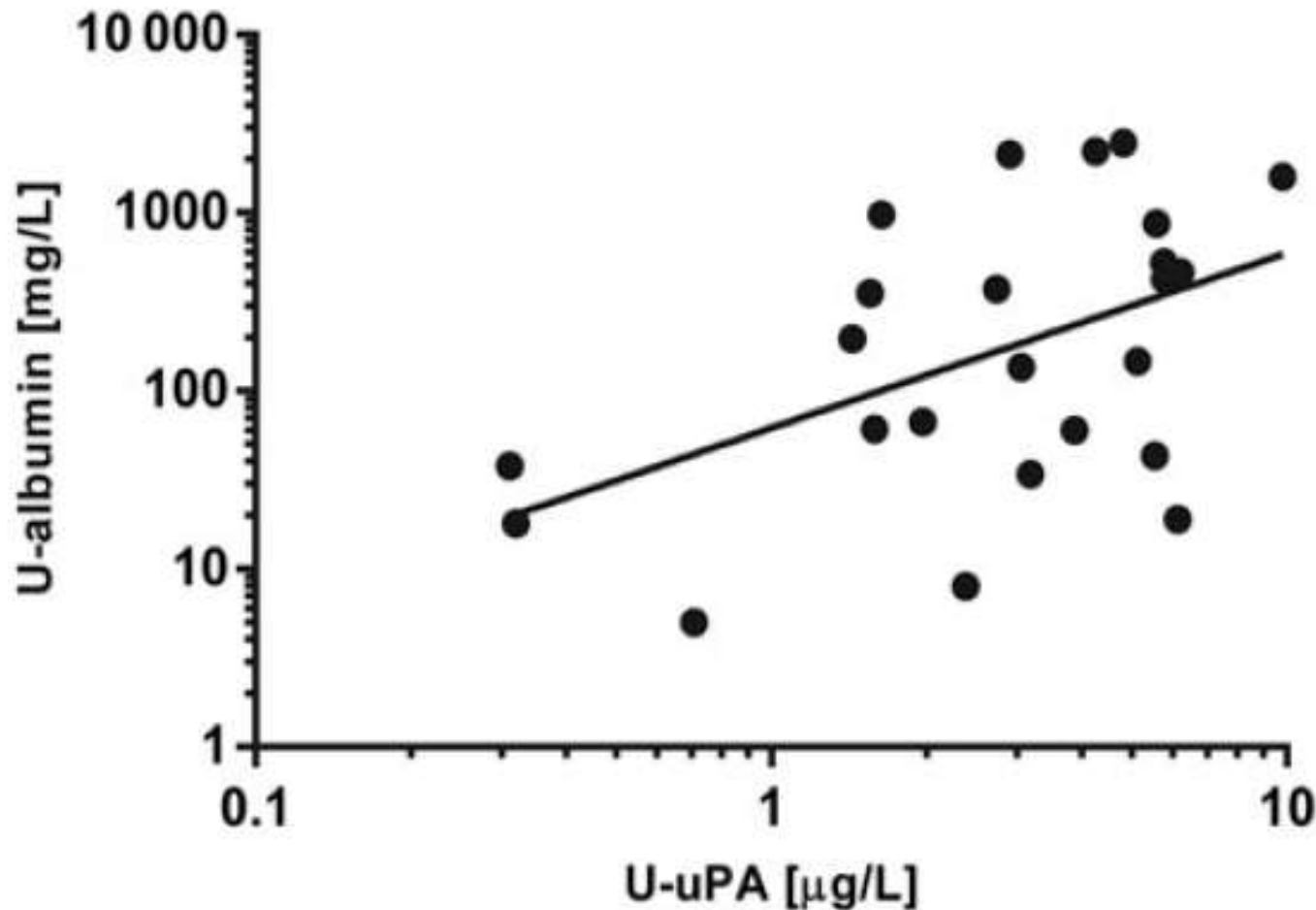
^bHypertension was defined as 24-h systolic and/or diastolic blood pressure >130/80 mmHg, respectively, or use of ≥1 antihypertensive drugs.

^cAverage degree of diabetic retinopathy. If the degree of diabetic retinopathy differed on the two eyes, the highest degree was used.

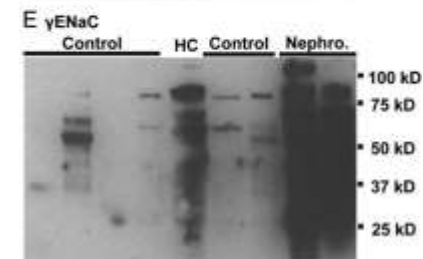
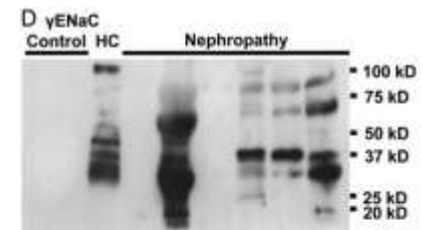
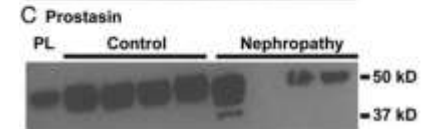
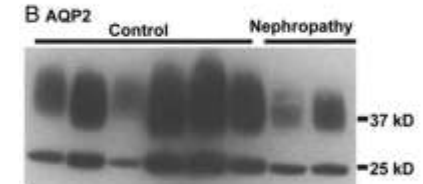
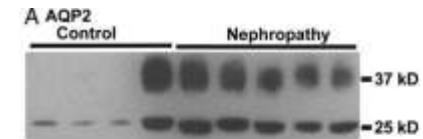
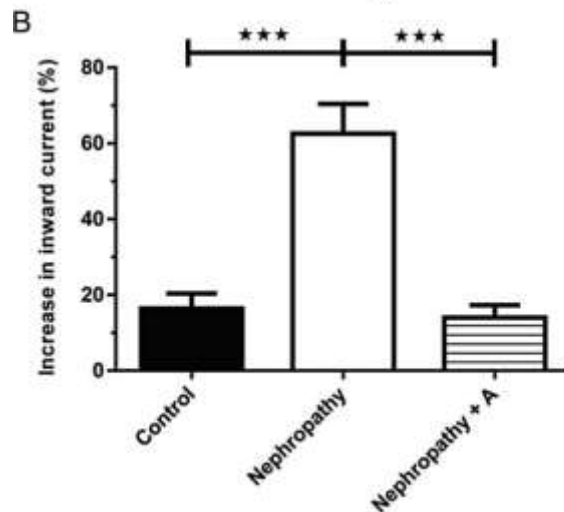
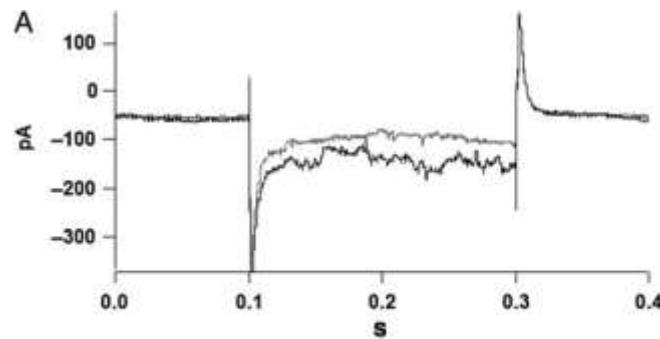
Diabetic Nephropathy and Urine Proteases



Diabetic Nephropathy and Urine Proteases



Diabetic Nephropathy and Urine Proteases



Diabetic Nephropathy and Urine Proteases



Diabetic nephropathy is associated with increased urine excretion of proteases plasmin, prostatic and urokinase and activation of amiloride-sensitive current in collecting duct cells

Henrik Andersen^{1,2}, Ulla G. Friis¹, Pernille B. L. Hansen¹, Per Svenningsen¹, Jan Erik Henriksen² and Boye L. Jensen¹

¹Department of Cardiovascular and Renal Research, Institute of Molecular Medicine, University of Southern Denmark, Odense C, Denmark and ²Department of Endocrinology, Odense University Hospital, Odense C, Denmark

Nephrol Dial Transplant 2015; in press

DKD and Basic Research:

An Update



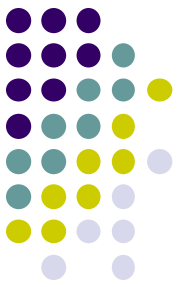
- **Adenosine**
- **HIF**
- **Endothelin-1**
- **MIOX**
- **Inflammasome**
- **TLR**
- **NOX**
- **TRAM34**
- **Renalase**
- **B7-1**
- **Angiopoeitin**
- **VEGF-A**

Proteinuria and hypertension in diabetes



Prof. Dr. M.A. Ghoneim







د. لاشين سعد علق على صورتك في مستقبل طب المنصورة.

د. لاشين سعد



2 فبراير 08:53 صباحاً

اعتقد ان الطالب ال undergraduate محتاج يقضي وقته في تعلم ال basics وامامه العمر بطوله الي اجراء الابحاث.....فالتالب المتميز مفيش عنده وقت للابحاث المرهقة...ده مجرد رأي

المنشور الأصلي

Hussein Sheashaa



2 فبراير 08:27 صباحاً

أكثر من 30 طالبا وأثناء أجازة نصف العام يتفاعلون بحدية مع ورشة العمل والتي تنظمها الجمعية العلمية بكلية طب المنصورة بعنوان البحث العلمي تحت رعاية أ.د/ محمد عطية وكيل الكلية لشئون التعليم والطلاب ويشاركني في الدورة أ.د. أحمد النحاس وأ.د عبد العزيز حسين بالإضافة إلى كوكبة من شباب الطلبة الباحثين والذي سبق لهم تجربة البحث العلمي وتمثيل مصر بأبحاث مقبولة لهم بأوروبا وأمريكا شيء رائع يبعث الأمل بأن مصرنا الحبيبة بخير إن شاء الله



طلبة القطاع الطبي ما قبل التخرج المشاركين في مؤتمرات دولية
وتم نشرها في مجلات علمية



أحمد نجيب



أحمد الخولي



محمود نصير



فريد شاور



ياسر حمص



هانى البش



حازم قاسم



محمد أسامة



سارة أبو الفتح



مervat فرج



اماني ابو زهرة



لية عبد الخير



أحمد غار



هانى حمص



إسلام الخولي



محمود الطيب



هانى البش



ليلى محمد على



ليلى لطفى



إسلام حمزة



محمد الهوارى



محمد الحصيلي



بهاء الدين سيد



ملوكا عزيز



إيمان أبو الزهر
(طب الأسنان)



سلي سمعاجين



محمد باسر الطربيش



حسان فريد



خالد نصر



محمد رضا



حسان حمزة



حسان عبد
(أ.ط.ب.)





32 y

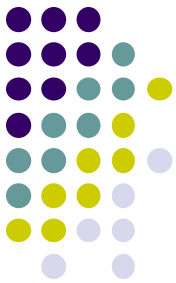


Frederick Grant
Banting



John James Rickard
Macleod

Discovery of insulin



Electronic Nephrology Education: ESNT Virtual Academy

Turn editing on

The Annual Nephrology Unit, IMD, Mansoura Universi...

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The Annual Nephrology Unit, IMD, Mansoura University Kidney and systemic diseases Feb 3-10.2015

First Day: Tuesday 3.2.2015

First Day: Tuesday 3.2.2015



News forum



Nutrition in Acute Kidney Injury, Dr Olfat Abdelhalim



Nutrition Assessment in Renal Disorders, Dr Olfat Abdelhalim



Nutrition in Acute Kidney Injury, Dr Olfat Abdelhalim

Second day: Wednesday 4.2.2015

Second day: Wednesday 4.2.2015



Diabetic kidney disease basic research Prof. Hussein sheashaa



NAVIGATION

Home

My home

Site pages

My profile

Current course

The Annual Nephrology
Unit, IMD, Mansoura
Universi...

Participants

Badges

First Day: Tuesday

3.2.2015

Second day: Wednesday

4.2.2015

Topic 2

Topic 3

Topic 4

Topic 5

Topic 6

Topic 7

Topic 8

Courses



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There are no upcoming events

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RECENT ACTIVITY

Activity since Monday, 2 February
2015, 11:25 AM

Full report of recent activity...

COURSE UPDATES:

Added File

Nutrition in Acute Kidney Injury, Dr
Olfat Abdelhalim